

Do Social and Behavioral Characteristics Targeted by Preventive Interventions Predict Standardized Test Scores and Grades?

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ABSTRACT: *This study assessed whether characteristics of individuals that are predictors of youth problem behavior such as substance use, delinquency, and violence also predict academic achievement. Longitudinal data from 576 students participating in the Raising Healthy Children (RHC) project were analyzed. The RHC project is a study of students recruited from a suburban Pacific Northwest school district. Tenth-grade academic achievement was measured by scores on a standardized test administered to students in Washington State (as part of compliance with the No Child Left Behind Act) and by student self-report of grades. Measures of social and behavioral characteristics at seventh grade were based on data from student, parent, and teacher surveys. Researchers assessed overall correlations between 7th-grade predictors and 10th-grade academic achievement as well as partial correlations adjusted for demographic characteristics and scores on an earlier achievement test, the Comprehensive Test of Basic Skills, in 4th grade. Results indicated that higher levels of school bonding and better social, emotional, and decision-making skills were related to higher test scores and higher grades. Lower test scores and lower grades were predicted by elevated levels of attention problems, negative behavior of peers, and disruptive and aggressive behavior. Lower test scores also were predicted by early use of alcohol and cigarettes. These findings support the premise that school-based social development interventions that address specific risk factors, curb early manifestations of antisocial behavior, and promote school bonding and social and emotional skills are likely to improve student academic achievement. (J Sch Health. 2005;75(9):342-349)*

In the past 2 decades, several studies have shown that some prevention approaches work to reduce problem behaviors such as drug use, violence, and delinquency.^{1,2} Schools are a common setting for preventive interventions and the main venue for prevention education targeted at adolescents.³⁻⁵ The US Department of Education is the largest single source of funding for prevention of youth problem behaviors.⁶ However, the No Child Left Behind Act⁷ has brought increased emphasis on effectiveness and accountability as measured by standardized test scores, and schools have become increasingly focused on issues related to academic achievement. In this climate, school administrators often are hesitant to invest time and resources in programs that focus more broadly on healthy social development and the reduction or prevention of problem behaviors such as delinquency, violence, and substance use.^{8,9}

Yet, schools that adopt effective prevention programming may also improve student academic achievement. Greenberg¹⁰ contends there is a need for "greater attention to the important role that prevention programs and policies can play in ... increasing academic performance." During the past 2 decades, a paradigm has emerged for designing effective prevention programs. This paradigm calls for identifying and targeting modifiable predictors that are associated with problem behaviors.^{11,12} If empirically established risk and protective factors targeted by preventive in-

terventions are also predictive of academic achievement, it is likely that such prevention programs will improve academic outcomes. In practical terms, if a link can be found, it would allow school administrators to focus more broadly on the methods used to boost academic test scores. This study assesses the degree to which variables that predict problem behaviors also predict academic achievement.

RISK AND PROTECTIVE FACTORS FOR PROBLEM BEHAVIOR

Among the commonly identified individual characteristics of early adolescents that are risk factors for problem behavior are poor self-regulation of attention or emotions, poor social and decision-making skills, and depression.¹³⁻¹⁵ Studies also have shown that positive social and emotional skills are linked to gains in academic achievement, including performance on standardized tests, in elementary and middle school,¹⁶⁻¹⁹ but there is a dearth of research on the extent to which these factors predict academic performance later in adolescence.

Early forms of antisocial behavior have been strongly related to later and persistent patterns of antisocial behavior. Examples include disruptive or defiant behavior in the classroom, physical and relational aggression, and early initiation of substance use.^{14,15,20} In addition to being linked to later, more serious, forms of criminal, violent, or delinquent behavior and substance abuse, early antisocial behaviors are associated with school failure and dropout.²¹⁻²³ Newcomb and Bentler²⁴ also found that substance use during adolescence is associated with poorer academic outcomes after high school graduation. Using National Educational Longitudinal Study data, Jeynes²⁵ found consistent negative concurrent associations between substance use and achievement test scores throughout adolescence. However, few studies have examined the link between antisocial behavior in early adolescence and later standardized test scores while controlling for prior academic ability.

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Poor academic achievement itself is a commonly identified predictor of various forms of problem behavior^{13-15,26,27} and is, of course, strongly related to later academic achievement. In addition, there are other important school predictors of achievement and problem behavior. Numerous studies have found that school bonding or connectedness is associated with less problem behavior.^{4,14,15,28} Further, school bonding has an association with academic achievement, including test scores.²⁹

Engagement in or tolerance of antisocial behavior is common in adolescence.³⁰ Bonding to peers involved in antisocial behavior is the strongest correlate of problem behavior in adolescence.^{13-15,31} Further, many preventive interventions working with middle school students focus attention on developing healthy peer relationships and avoiding the influence of peers engaged in problem behaviors (for example, Life Skills Training Program,³² Project Alert,³³ and All Stars³⁴). While negative behavior of peers has been tied to school dropout,³⁵ little research has been undertaken showing that antisocial behavior of peers predicts test scores or grades.

Goals of the Current Study

The current study attempted to assess evidence for predictive relationships between risk and protective factors commonly targeted by preventive interventions and academic achievement later in adolescence. Researchers employed longitudinal data, with risk and protective factors measured when children were in grade 7 and academic achievement measured at grade 10 by scores on a standardized achievement test and youth self-report of grades. The predictive relationships were adjusted for prior academic skills, measured by fourth-grade test scores, and demographic variables.

METHODS

Sample

Participants were from the Raising Healthy Children (RHC) Project, a longitudinal study of students drawn from 10 public schools in a suburban Pacific Northwest school district. RHC is a study of the etiology of problem behaviors as well as a test of a multicomponent preventive intervention. The intervention was delivered at 5 of the project elementary schools and consisted of instructional staff development for teachers, parenting workshops for parents, summer camps and study clubs for students, and home-based case management services for high-risk students who exhibited academic or behavioral problems. Additional details regarding RHC are reported in Haggerty et al.,³⁶ Catalano et al.,³⁷ and Brown et al.³⁸ Active consent to participate in yearly surveys and have records collected from students' schools was obtained from 76% of eligible families. Nine hundred and thirty-eight first- or second-grade students were enrolled in the project in fall 1993. An additional 102 students, who were from the same grade levels and had transferred to the study schools, were enrolled in the fall of the subsequent year.

To be included in the current study, an RHC participant had to have standardized test scores from both 4th and 10th grade and information on household structure and income from parent surveys administered when participants were in 7th grade. Tests used in the analysis

were administered in Washington State public schools. Four hundred and forty-seven participants from the original RHC sample had moved out of their original school district and attended schools that did not provide test scores. Another 17 students lacked household structure and income data from parent surveys in seventh grade. The remaining analysis sample consisted of 576 students. Of the analysis sample, 57% were originally enrolled in an intervention school and 53% were male. The ethnic composition of the analysis sample was 84% white, 7% Asian or Pacific Islander, 4% Hispanic, 3% black, and 2% Native American. Based on seventh-grade parent survey data, 24% came from families with only one parent and 14% from families that were low income (indicated by students receiving reduced-price or free lunch at school or the families receiving public assistance in the form of Temporary Assistance for Needy Families (TANF) or food stamps).

The analysis sample was not evenly representative of the original RHC sample, differing significantly ($p < .05$) on original intervention condition assignment as well as on demographic and behavioral characteristics. Compared to participants included in the analysis sample, the excluded participants were less likely to have been originally enrolled in intervention schools (50%), and more likely to be black (7%), or low income (24%). Excluded participants also were more likely to report problem behaviors in their seventh-grade interview than participants in the analysis sample (for example, in the prior year 34% vs 26% reported drinking alcohol and 12% vs 6% reported smoking marijuana).

Data Collection

Annual student, parent, and teacher survey data were collected for all students enrolled in the project, even if they had left their original elementary school or the school district from which the sample was recruited. For completing surveys, parents received small monetary incentives and children received token gifts during elementary school and gift cards or cash during middle and high school. Data from the 2 grade cohorts in the RHC study were combined and organized by grade level. Thus, 10th-grade academic achievement measures were from spring 2002 or 2003, depending on the cohort. Parent data were available for 100% of the analysis sample, teacher survey data for 98%, and child survey data for 99%.

Measures

Academic Achievement. At 10th grade, academic achievement was assessed with (1) the average of math and reading scores on the Washington Assessment of Student Learning (WASL)³⁹ and (2) self-report of grades. The WASL was developed as a criterion referenced test, designed to assess mastery of basic academic skills and knowledge. However, scores have an approximate normal distribution and display external validity with reference to the nationally administered Iowa Test of Educational Development, with correlations over .7 between scores on similar topic areas for tests administered a year apart.³⁹ WASL scores are used in the state of Washington to evaluate schools' progress as part of a statewide school reform started in 1992. The scores also act as a measure for the

federal No Child Left Behind legislation. Beginning with the class of 2008, WASL scores also will be used as a criterion for high school graduation. The 10th-grade measure of grades was based on the child's answer to the survey item, "In general, what are your grades like this year?" with response options ranging from 0 to 4 (for example, 2 = "Mostly C's"). Achievement test score measures and student report of grades were correlated $r = .44$.

Risk and Protective Factors. Risk and protective factors were assessed with data from child, parent, and teacher surveys when students were in seventh grade. Measures were similar to those used in prior studies linking social development variables to later problem behavior.^{13-15,40} Table 1 contains example items and measures of internal consistency of the scales. In the case of attention problems, decision-making skills, and early antisocial behavior, measures from different reporters (parent, teacher, or child) were used to measure the same or similar constructs. Teacher survey items used in the measures of antisocial behavior and attention regulation are from the Teacher Observation of Classroom Adaptation—Revised⁴¹ and the Child Behavior Checklist (CBC).⁴² Teacher survey items concerning social and emotional skills are primarily from the Walker-McConnell Scale of Social Competency & School Adjustment.⁴³ Child items measuring antisocial behavior are either adaptations of CBC items or commonly used items measuring early delinquent behavior.⁴⁴ The measure of relational aggression uses items drawn from the Communities That Care[®] student survey of risk and protective factors⁴⁵ and the Social Experience Questionnaire—Self Report.⁴⁶ Items used in the measure of negative peers are from Newcomb and Bentler.²⁴ Measures of decision-making skills in both parent and child surveys are from the Child Coping Strategies Checklist.⁴⁷

Correlations among risk and protective factor measures, shown in Table 2, are for the most part in the expected direction. There is evidence of method effects, with correlations between measures derived from the same source showing moderate to high correlations, particularly among measures derived from teacher surveys where the correlations all have an absolute value above .5. Among child-report measures, problem behavior, substance use, negative peers, attention regulation, and school bonding had moderate intercorrelations in the range of .2 to .5. As other studies have found with regard to family processes and youth behavior,^{48,49} correlations between the same or similar constructs measured by different reporters were modest. For instance, child and teacher report of attention problems are correlated .31, and child and parent measures of decision making are correlated .17.

Prior Academic Skill. Prior academic skill was based on the average of math and reading scores on the Comprehensive Test of Basic Skills (CTBS)⁵⁰ administered to all students in the state of Washington in fourth grade.

Demographic Variables. School records of student ethnicity and parent survey information from when students were in seventh grade were used to determine demographic variables. Low-income status was defined by receipt of reduced-price or free lunch at school or the student's family receiving public assistance in the form of TANF or food stamps. Single-parent status was defined by whether the child was living with only 1 parent at the time of the seventh-grade parent interview. Parent education was the

mean of parents' educations measured on a 9-point ordinal scale (for example, high school graduate, some college, college graduate, and the like).

Analysis

Unadjusted and partial correlations were assessed between each potential predictor and 10th-grade test scores and grades. Partial correlations controlled for 4th-grade test scores and demographic variables including gender, ethnicity (represented by 4 dummy variables), parent education, and whether the participant lived in a single-parent or low-income household. For both overall and adjusted correlations between dichotomous variables and academic achievement, point biserial correlations were used. Although significance levels of $p < .05$ are indicated in the table of results, researchers focused on significance levels of $p < .01$ due to the large number of associations assessed. As a framework for describing effect sizes for correlations, researchers used Cohen's⁵¹ categorization of .1 to .2 as "small," .2 to .5 as "moderate," and over .5 as "large."

Participants in both the intervention and nonintervention conditions of the RHC project were included in the analyses. Intervention condition was not significantly related to 4th- or 10th-grade test scores nor with any of the 7th-grade predictor variables. Due to the exclusion of a large portion of the original study sample from the current study, test of intervention condition differences on test scores and risk and protective factors using the analysis sample in the current study is not a fair test of the intervention's efficacy. Analyses of intervention efficacy that are true to the experimental design of the original study are reported elsewhere.^{37,38} Other results showed that intervention condition was significantly associated with a difference in the strength of association between a predictor variable and academic achievement in only 1 instance out of 16 predictor variables examined. In that 1 instance, the significance level and direction of association was the same across conditions.

RESULTS

Table 3 contains the unadjusted and partial correlations between risk and protective factors and both measures of academic achievement. Attention regulation, commitment to school, and social and problem-solving skills displayed the strongest associations with academic achievement. The unadjusted correlations between measures of these variables and later academic achievement were all statistically significant, and most were moderate in strength. Adjusting for covariates did diminish these associations, but these variables were still statistically significant predictors of academic achievement after accounting for demographic variables and prior test scores. The measure of depression was predictive of grades but not test scores, and the adjusted association with grades was only significant at the $p < .05$ level. Parent report of decision-making skills was more highly correlated with academic achievement than the child report measure, although both sets of associations were positive and statistically significant.

The relationships of academic achievement with early initiation of substance use and antisocial behavior were in

Table 1
Measures of Risk and Protective Factors

Risk/Protective Factor	Source	No. of Items	Components or Example Items	Internal Consistency*
Attention and depression				
Teacher report of concentration problems	Teacher	5	Mind wanders Is easily distracted	$\alpha = .87$
Child report of attention problems	Child	2	Do/did you have trouble paying attention in class? Is it hard for you to listen and follow directions?	$r = .66$
Depression	Child	7	Do you feel like crying a lot of time? Do you feel upset about things a lot?	$\alpha = .80$
Skills				
Social skills	Teacher	12	Invites peers to play or share activities Listens to others' points of view Resolves peer problems on own Listens while others are speaking Is very good at understanding other people's feelings	$\alpha = .92$
Emotional skills	Teacher	5	Controls his/her temper when there is a disagreement Can accept things not going his/her way	$\alpha = .89$
Parent report of decision making	Parent	4	Would you say that ... (STUDENT) has difficulty coming up with solutions to problems? Would you say that ... (STUDENT) thinks about the consequences before making a decision?	$\alpha = .79$
Child report of decision making	Child	3	When I have a problem, I think about the best ways to handle the problem When I have a problem, I think about what would happen before I decide what to do	$\alpha = .87$
Substance use				
Alcohol	Child		Whether drank "more than a sip of alcohol" in the prior year	
Marijuana	Child		Whether used marijuana in the prior year	
Cigarettes	Child		Whether smoked a cigarette in the prior month	
Antisocial behavior				
Bullying/relational aggression	Child	6	How many times in the past 12 months have you tried to make people not like another student or tried to keep them out of your group of friends? How many times in the past 12 months have you called another student mean names, teased, or made fun of them in a mean way?	$\alpha = .77$
General antisocial behavior and aggression	Child	6	In the past year, how often have you started a fight with someone? Do/did you talk in class a lot when you are/were not supposed to?	$\alpha = .79$
Antisocial behavior in the classroom	Teacher	10	Argues a lot Is cruel or mean to others Talks back to adults; is disrespectful	$\alpha = .90$
School bonding				
Bonding to school	Child	4	Do/did you think school is/was fun? Do/did you try to do well in school?	$\alpha = .66$
Commitment to school	Teacher	2	Student tries hard in school Student wants to do well in school	$r = .80$
Peers				
Negative peers	Child	7	Number of 10 best friends who drink alcohol get into fights	$\alpha = .90$

* Cronbach's alpha given for scales with multiple items. Pearson's r given for measures with just 2 items.

the expected direction, although the magnitude of associations was small. Both alcohol and cigarette use had significant overall associations with test scores, although the adjusted association between alcohol use and test scores was significant only at the $p < .05$ level. With respect to grades in 10th grade, none of the associations with substance use were significant at the $p < .01$ level. Both teacher and child report of antisocial behavior had statistically significant overall and adjusted associations both with grades and test scores. Child report of relational aggression was a significant overall and unique predictor of test scores but not grades.

In the school domain, the teacher report measure of school commitment was more predictive of test scores than the more general child report measure of school bonding that included items measuring attachment, although both had significant overall and adjusted associations with self-report of grades. Student report of contact with negative peers that, as indicated in Table 2, was strongly positively associated with different forms of concurrent antisocial behavior, was negatively associated with test scores and grades. This association was present both

overall and after adjusting for demographic variables and prior test scores.

Researchers also ran regression models for both WASL scores and grades in which all the risk, protective, and antisocial behavior variables were entered together. The risk, protective, and antisocial behavior variables increased the explained variance in WASL scores at 10th grade by 4.2% beyond the 44.1% explained by previous test scores and demographic variables. These variables also increased the explained variance of student grades at 10th grade by 9.1% beyond the 16.1% explained by prior test scores and demographic variables.

DISCUSSION

This study attempted to assess whether the social and behavioral characteristics of seventh graders that are commonly targeted by preventive interventions are predictive of academic performance in high school. Strong and consistent evidence was found that social, emotional, and decision-making skills, based on teacher, child, and parent

Table 2
Correlations Among Risk and Protective Factors, Correlation Between Risk and Protective Factors and Control Variables, and Descriptive Statistics for Risk and Protective Factors

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1		.31	.16	-.66	-.71	-.43	-.16	.15	.17	.10	.17	.34	.51	-.26	-.59	.27
2			.47	-.26	-.29	-.28	-.38	.25	.14	.14	.38	.71	.21	-.38	-.27	.33
3				-.21	-.19	-.14	-.19	.14	.10	.07	.16	.37	.15	-.39	-.20	.16
4					.75	.38	.11	-.09	-.11	-.10	-.14	-.27	-.52	.31	.59	-.22
5						.37	.17	-.15	-.13	-.10	-.21	-.34	-.66	.22	.52	-.25
6							.17	-.18	-.18	-.06	-.16	-.30	-.29	.11	.34	-.23
7								-.25	-.11	-.13	-.43	-.47	-.19	.36	.09	-.35
8									.24	.27	.26	.38	.18	-.15	-.16	.44
9										.36	.23	.25	.12	-.07	-.13	.43
10											.24	.25	.10	-.17	-.10	.43
11												.59	.18	-.24	-.13	.41
12													.29	-.35	-.29	.51
13														-.14	-.38	.23
14															.25	-.27
15																-.22
A	-.27	-.13	-.05	.22	.22	.26	-.01	-.08	-.08	-.03	.00	-.14	-.14	-.03	.22	-.14
B	-.16	-.03	.02	.15	.13	.20	.02	-.03	-.06	-.07	.00	-.04	-.08	-.02	.25	-.09
C	.31	.17	.01	-.29	-.24	-.12	-.05	.02	-.06	.09	.17	.20	.15	-.13	-.21	.17
D	.03	-.04	.00	-.04	-.04	-.04	.04	.01	.02	-.03	-.07	-.10	.06	.02	-.04	-.01
E	.18	.09	.04	-.07	-.15	-.04	-.08	.03	.09	.07	.06	.07	.13	.00	-.11	.13
F	-.06	-.06	-.04	.04	.05	.03	.07	-.01	-.06	-.04	-.04	-.08	-.09	.04	.09	-.04
G	.05	.01	.11	-.04	-.11	.02	.05	.03	.06	.06	.01	.07	.04	-.01	-.08	.01
H	.00	.00	.08	-.06	-.03	-.06	.02	-.01	-.03	-.04	.05	.03	.04	-.09	-.01	.07
Mean	1.60	1.97	1.97	3.85	3.89	3.76	2.70	0.26	0.05	0.06	1.51	0.26	1.14	2.08	3.20	11.75
SD	0.52	0.79	0.60	0.71	0.84	0.56	0.66	0.44	0.22	0.23	0.60	0.24	0.27	0.45	0.76	5.09

1, teacher report of attention problems; 2, child report of attention problems; 3, depression; 4, social skills; 5, emotional skills; 6, parent report of decision making; 7, child report of decision making; 8, alcohol; 9, cigarettes; 10, marijuana; 11, bullying/relational aggression; 12, general antisocial behavior; 13, antisocial behavior in the classroom; 14, bonding to school; 15, commitment to school; 16, negative behavior of peers; A, grade 4 test scores; B, parent education; C, low income; D, single parent; E, Asian; F, African American; G, Native American; H, Hispanic.

report, predicted both test scores and self-report of grades, even after adjusting for prior test scores and demographic variables. There was also evidence that attention regulation and commitment to school, as assessed by teachers, predicted academic achievement. Child report of bonding to school did not predict test scores but did predict self-report of grades. Student depression also was a significant predictor of grades but not of test scores. These findings corroborate prior research but are unique in that they link risk and protective factors for problem behaviors, measured in early adolescence, both with performance on standardized tests of academic skills and grades in the middle of high school. Taken as a whole, these findings support the argument that interventions that boost the social and emotional skills of children, increase their ability to stay focused in the classroom, and improve school bonding, are likely to increase academic performance.

There also was evidence that early disruptive and anti-social behavior, whether reported by teachers or children themselves, had a predictive relationship with academic achievement. Associations between early substance use and later test scores were small and, in the case of marijuana use, nonsignificant. These associations nonetheless showed some evidence of a relationship, despite the fact that the prevalence of substance use at this early time point was low and the measures of substance use were dichotomous. Antisocial behavior of peers also was found to be predictive of later academic achievement. While prior studies have linked problem behavior, associating with peers engaging in problem behavior, and school dropout,²¹⁻²³ this study adds to prior research by linking these variables with standardized test scores across a 3-year time span, providing evidence of the robustness of the relationship. These findings support programs that attempt to

Table 3
Associations Between 7th-Grade Risk and Protective Factors and Academic Achievement at 10th Grade

	Achievement Test Score		Self-Report Grades	
	r	Partial r	r	Partial r
Fourth-grade test score	.66**		.34**	
Demographics				
Asian	.13**		.17**	
Black	-.06		-.09*	
Native American	-.06		-.04	
Hispanic	-.10		-.01	
Male	-.06		-.14**	
Low income	-.13**		-.07	
Single parent	-.06		-.10*	
Parent education	.29**		.24**	
Attention and depression				
Teacher report of attention problems	-.36**	-.24**	-.37**	-.25**
Child report of attention problems	-.19**	-.14**	-.18**	-.12**
Depression	-.04	-.01	-.11**	-.09*
Social and problem-solving skills				
Social skills	.29**	.17**	.38**	.29**
Emotional skills	.30**	.19**	.29**	.18**
Parent report of decision making	.36**	.22**	.31**	.21**
Child report of decision making	.09*	.13**	.11**	.11*
Seventh-grade substance use				
Alcohol	-.12**	-.09*	-.11*	-.08
Cigarettes	-.14**	-.11**	-.07	-.03
Marijuana	-.09*	-.08	-.07	-.03
Antisocial behavior				
Bullying/relational aggression	-.13**	-.16**	-.06	-.03
General antisocial behavior	-.24**	-.20**	-.20**	-.13**
Antisocial behavior in the classroom	-.18**	-.11*	-.21**	-.13**
School bonding				
Bonding to school	.04	.07	.13**	.13**
Commitment to school	.33**	.22**	.40**	.13*
Peers				
Negative behavior of peers	-.24**	-.18**	-.21**	-.13**

* $p < .05$; ** $p < .01$.

reduce forms of disruptive and antisocial behavior during elementary and middle school (for instance, by improving school and family discipline techniques) and that establish clear norms against relational aggression and bullying, teach refusal skills, and form more positive peer networks during middle school.

Several study limitations are worthy of note. This study was carried out within the risk and protective factor paradigm of empirically establishing precursors of behavioral outcomes. Researchers did not attempt to specify and test a causal model of the interdependence among predictor variables and thus are not able to identify the most salient variables affecting academic outcomes. However, identifying the most salient variables may not be crucial from the standpoint of preventive interventions that commonly target constellations of risk or protective factors. Variables within these constellations reinforce one another and have both more and less proximal relationships to outcomes. An additional limitation is that the RHC sample was drawn from elementary schools in just 1 school district in Washington State and included only those participants who stayed in Washington State public schools that provided CTBS and WASL scores. As a result, participants who were more mobile, poorer, and who reported higher rates of substance use in seventh grade were dropped from the analysis sample. Still, the analysis sample was heterogeneous with respect to demographic characteristics, socioeconomic status, and behavioral variables, meaning that the findings reported here are likely to generalize to other US student populations.

This study operated within the risk and protective factor paradigm, examining the predictive relationship between social and behavioral variables and later outcomes. Researchers used a conservative test of predictive relationships by using prospective longitudinal data from multiple sources and controlling for demographic variables as well as a prior measure of academic skills. The study provides strong evidence that focusing on social and behavioral characteristics targeted by preventive interventions can improve academic outcomes. Such findings may help school administrators as they seek to effectively determine strategies to both increase academic performance of students and enhance positive social development. ■

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